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ABSTRACT

This paper makes a distinction between the formative evaluation that can be carried out in the early stages of the development of educational television programs, i.e., from the emergence of the idea through the development of a script, and those that have to be executed in the later stages of development, i.e., during the production process. The nature of these phases of development is explained, and the evaluation activities that could be integrated with them are suggested as well as who should carry out the evaluations. Cognitive, affective, medium, content, design, and aesthetic criteria that can be used in this evaluation process are listed, and it is argued that the earlier the evaluation takes place, the more effective and feasible it is. A 63-item list of references is provided. (MES)

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FORMATIVE EVALUATION

OF ETV PROGRAMMES IN THE EARLY

STAGES OF THEIR DEVELOPMENT

BY

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FORMATIVE EVALUATION OF ETV PROGRAMME IN THE EARLY STAGES OF THEIR DEVELOPMENT

Introduction

TV development activities vary from phase to phase. It follows that the decision makers face different problems at each phase. The task of the evaluators consequently differs with phases of the programme development.

Formative evaluation begins when the idea of the programme emerges and stops when full-scale production begins. This paper suggests a further distinction between different formative evaluation activities; formative evaluation activities that can be carried out in the early stages of the programme development versus formative evaluation activities that have to be executed in the later stages of its development.

It also attempts to explain the nature of these phases and suggests what evaluation activities could be integrated with these development activities, and also who should carry out the evaluation activities.

Figure 1 shows the distinguishable phases of the programme development.

Figure 1: Integrating Formative Evaluation with ETV Development

Formative Evaluation	ETV Phases of Development	ETV Stage of Development
Early	I. Preparation	1. Idea 2. Rationale
	II. Development	3. Content 4. Script
Late	III. Production	5. Production of Pilots 6. Full-scale Production

The formative evaluation of an Educational TV programme (ETVP) is divided into two groups:

A. formative evaluation in early stages of the ETVP development;

B. formative evaluation conducted in later stages of a programme's development

We shall examine feasability of incorporating formative evaluation in the early developmental stages (Phases I & II). We shall also consider Self-Formative Evaluation (S.F.E.) (Duby, 1985 b), which is conducted by both ETV developers and evaluators in the process as a better way to improve ETV and TV professionals' performances.

Theoretical Frame Work

Formative Evaluation

"Without a careful integration of formative evaluation activity, instructional development is nothing but an art form, an invention, usually with poor marks in aesthetics." (Nathenson, 1980, P.11)

Abedor (1972) defined formative programme evaluation as an attempt to answer three questions:

how to identify weak points in a programme using data collection; (also Light & Reynolds, 1972);

how to analyse these data to develop revised hypotheses;

how to design and evaluate revisions.

Markele (1967) demonstrated the merits of trying materials in their draft stage with a single or a few learners using non-control-group design.

Cronbach (1963) proposed to examine the effectiveness of segments of a programme rather than the "course as a whole" in order to identify "places where the course could be strengthened".

Alkin (1974) focused the testing of segments of a programme as a typical formative evaluation activity. He added some more features of formative evaluation studies : their design is explanatory and flexible; they emphasise interactive processes, make use of a variety of research instruments and do not use comparative studies.

Formative Research has much in common with formative evaluation and is usually applied in the context of developing ETV (Nathenson, 1980) but is excluded from this study because it adds to formative evaluation the dimension of formulation its hypothesis (can be generalised), whereas this study concentrates on pragmatic and practic evaluation. Formative research is conducted by the researcher whereas formative evaluation emphasises the in-house team work. Formative research is conducted in the later stages of the ETV development and the aim of this paper is to conduct the evaluation as soon as possible. The main purpose of formative research is to collect data systematically from audience tests in order to evaluate progress towards the achievement of objectives that have been clearly identified in advance (Palmer, 1974), whereas the formative evaluation also addressed itself to objectives that emerge during the development as well.

Two innovative features of formative activities used in the CTW (Cooke & Curtin, 1985) should be emphasised:

a. reiterate formative evaluation feedback;

b. continuity of in-house staff involvement in the formative-evaluation/development process.

These two features not only contribute to the immediate and continual improvement of the product, but also to the immediate and continual improvement of the staff involved.

Self-Formative Evaluation

Self-formative evaluation of instructional media during their development can be carried out not only by the internal evaluators, but by users or developers of the programme. (Duby, 1985 b).

It is not to be confused with self-evaluation which has a psychotherapeutic contingent. It is also different from evaluation conducted by an outside researcher. (Duby, 1985 b).

The aspect of the Self-Formative Evaluation is not so much in the system as in the application of it in television production since "television producers do not generally seem to involve themselves directly in evaluation activities". (Nathenson, 1980, p. 29).

Closer contact between developers and evaluators and the possibility of simultaneous planning of development and evaluation activities and the self improvement effect are the main features of self-formative evaluation (Duby, 1985 b).

The advantages of using self-evaluation in the formative evaluation of ETV are summarised by Duby (1985 b) as follows:

a. It reduces the threat associated with the activities of an external evaluator.

b. An individual who has carried out self-evaluation activities tends to show openness to evaluation carried out by others.

c. Self-evaluation increases awareness of the benefits that may be gained by the evaluation.

d. The party carrying out the self-evaluation has first hand knowledge of the actual evaluation needs and is familiar with the context variable, which may effect the validity of the findings.

e. Self-evaluation carried out jointly by developers and users strengthens communication between them.

f. Self-evaluation is a powerful tool for self-improvement.

g. The producer, who also functions as an evaluator, is constantly informed about the evaluation results and is able to make decisions to improve the programme.

h. The user himself is involved in the evaluation and is therefore better motivated to play an active role in producing educational TV programmes.

i. The speed at which information obtained from "formative evaluation" is assimilated into the production process.

j. The involvement of the ETV developer and ETV user in the production ensures the maximum suitability of the programme to fulfill its intended purpose.

Content Analysis

Content analysis is defined by Scriven (1981) as "the evaluative or pre-evaluative process of systematically determining the characteristics of a body of materials." (p.31)

The techniques for this evaluation process are mainly : counting frequency of certain kind of words; analysing the plot in order to determine balanced appearance of certain images, e.g. males, females, children, robots, blacks or whites etc.; monitoring reinforced main ideas or main objectives against side issues, etc.

Its main purpose is to ensure that the right learning effects (pay-offs) accrue as result of exposure to right amount of selected effects. Thus content analysis can result in content validity which indicates whether the content appears to meet all requirements for congruence between claimed and actual content, meets only claimed requirements and/or meets unclaimed objectives.

The content analysis technique is the main evaluation instrument used in early formative evaluation.

Criteria for ETV Formative Evaluation

The list of criteria that have to be considered in the evaluation of educational project is endless. Nevertheless we shall scrutinise the possibilities to show briefly that in spite of the fact that only few information sources are available to the evaluator at the early stages of the project developer, as information develops simultaneously with the project, some criteria can already be employed in the early stages. We shall also group the criteria to show which of the vital criteria can be used during early formative activities and which one has to postpone using until the more progressed stages.

Educational Criteria Sources

Scriven (1974) suggests that for each educational project a "Production Evaluation Checklist" (p. 7) should be compiled.

The status of every item in that checklist can be expressed by saying that each is "desiratum" and some items are "necessitata" ... "Each of these conditions must be met to have impeccable ground for a conclusion of merit for an educational programme" (p. 8)

Formalisation of educational objectives does not occur in vacuo, disconnected from reality, but is a result of socio-cultural-economic factors and should reflect the values and principles of a given society (Postlethwaite, 1977)

Many researchers oppose the pre-specification approach, since the teaching process is dynamic and complicated, and results in a variety of outputs which are difficult to predict and therefore impossisble to prescribe as objectives. Eisner (1979)

One must also be aware that the determined objectives do not contain all that can be achieved by the learner using that programme. (Skager, 1978; Domingo, 1979)

Mager (1975) and Scriven (1972) suggested additional criteria that Mager (1985) termed "reference criteria" and Scriven (1972) "goal free evaluation".

"In this approach, the evaluator would make a deliberate attempt not to be co-opted by the rhetoric of programme goals" (Scriven, 1972, p. 179) Accordingly the evaluator uses the evaluation subject as a source of criteria, regardless of the stated goals. He identifies issues that exist in the educational programmes and evaluates the importance of these in meeting educational needs ("or producing educational or personal harm" p. 179)

Consequently it is the evaluator's role to rephrase the objectives as they occur. In our model the last stage at which objectives can still be changed is the stage labelled "script". However changes should be limited in amount or avoided to prevent an endless development process.

Three elements are joined to create an instructional TV situation: The content, TV features and viewer characteristics. (Duby, 1985 b).

Criteria for the analysis of ETV programme will therefore stem from the three zones. The "learner" component is further divided into cognitive and affective factors (Bloom, 1976) and also concerns the unique needs of particular learner groups. (Guillford, 1959).

Cognitive Criteria

In this term low cognitive abilities are included e.g. knowledge and recall (Taba & Hills, 1965), and high mental abilities of comprehension, application, analysis, synthesis and evaluation (Bloom, 1956).

Cognitive criteria from another point of view may be drawn from Piaget's theory (Piaget 1952, 1957) which implies that the first thinking moulds born in the human mind are elements of concrete thinking.

One can refer to concrete thinking manipulation abilities in 2 to 5-year old children. The concrete thinking gradually develops into abstract thinking (the way adults think) through generalisation of concrete elements in 6 to 9- year- old children.

Simultaneous analysis of the ETV potential and of target audience abilities will provide the researcher with data concerning the programme's cognitive suitability for a certain audience, e.g. The concrete-abstract elements in the programme should be analysed and matched with the viewer's ability. This is why one can produce a TV programme aimed at pre-school children, who may find a book too abstract a learning instrument (Minowich 1966).

Affective Criteria

The power of TV as an instructional medium lies in its ability to influence viewers´attitudes. Criteria from that field should thus be employed in evaluating whether the ETVP consists of such values and whether they match the objectives of the instructor.

Medium Criteria

As the technical characteristics of a programme or its format influence the understanding of the individual viewer, they should be watched and be evaluated (Baggaley 1980 b. Burke et al, 1981; Paluzzi, 1980)

Aversa and Forman (1978) describe the UMA model that is based on three categories of criteria, namely content, design and aesthetic quality. For example:

Content Criteria

Is the content important?
Are there content errors?
Are there ambiguous content areas?
Is there an appropriate amount of content?
Does the programme present interesting and challenging ideas?

Design Criteria

Is the programme either too simple or too difficult?
Is the programme well organised?
Is the information clearly presented in the programme?
Are there pre-requisites for the programme?
Are too many or too few topics treated?
Does the programme develop the main points adequately?
Are the main points well illustrated?
Are non examples of the main points used?

Aesthetic Quality (Production) Criteria

Is the voice-over technique used effectively?
Are existing stills and footage put to good use?
Is there continuity between sequences?
Is the programme pace too fast or too slow?
Are the sequences an appropriate length?
Is the level of comments made by the host(s) and other actors appropriate?
Is there a good relationship between the audio and video tracks?
Is the programme visually exciting?

From these criteria the first two categories can be looked at in the early developmental stages, whereas the third category can be looked at only after real production has taken place.

Salomon (1976: 25) differentiates "at least three factors which could make a difference in learning: the technology involved, the content transmitted and the symbolic codes in which the message is coded".

For example, he found "that children viewing the version which emphasised close-ups acquired more knowledge pertaining to the relationship between parts or wholes." (p. 26)

As the close-up technique can develop the cognitive skills of analysis and differentiation in the viewer and can also be used for emphasis. One should evaluate an educational programme to find, for example, whether the close-up emphasises an important element or distracts the viewer's attention. If the differentiation between two elements is the educational objective of a programme, is the close-up used to help the viewer distinguish between the two?

He also found that "children viewing the version which entailed logical gaps excelled in their comprehension of the plot's logical structure and continuity." (1976: 26) Such planned and unplanned gaps can serve as educational criteria as well. Other similar criteria include the use of humour in the programme, drama effects, use of colours (Lee & Schrom, 1967; Murray, 1980; Clements, 1984), the rhythm of the programme, etc.

Anderson (1985) discusses the violent factors in children's programmes and concludes that "television may indeed influence children's attentional skills, but if so, the influence appears to be positive as well as negative."

"One of TV's major advantages is its capacity to overtly and explicitly show a process, a transformation .... TV alone can visually show how a transformation which is analogus, or even similar, to what ought to take place in our minds." (Salomon 1976) In the "rationale" stage the evaluator can therefore examine whether the programme is about a process or a static situation and can decide accordingly what to show in the TV programme and what to leave for books and other static aids.

Although the latest criteria are related to the medium domain and thus can be specifically tested only after the medium is used, i.e. after real production takes place, they are already indicated in the script and thus can be analysed in a non-experimental situation already in the early formative evaluation stages. The main role of the evaluator is to identify such issues, analyse them and their effects, and draw the manager's attention to the conclusions. He should follow up the interpretation of the recommendations by the production team and see that they are correctly implemented.

However, as it is difficult to predict how sound effects, camera angles and so on will affect the viewers before they actually see them on screen, the evaluation of these should occur only at the "last moment" of later formative evaluation, namely with the pilot programme.

Early versus Late Formative Evaluation

The main objective of this paper is to convey the message that it is easier, better and more efficient to integrate formative evaluation activities as soon as possible in the development process.

We shall now examine what can and should be evaluated in the early stages and what has to be postponed until the later stages.

Early Formative Evaluation

When only the idea of an ETV exists, one can examine whether there is a need for such a programme. At this stage the programme manager can employ researchers to determine whether the subject has not already been covered by other teaching aids, whether the programme focuses on the needs of a defined target group, and possibly to suggest a presentation format (broadcasting, video cassettes, drama documentary etc).

An analysis of cost effectiveness should also be conducted during the early stages of development. The purpose of this analysis is to determine the programme costs and its effectiveness, and is often described in terms of qualities (pay-offs).

The evaluators task is to weigh up and synthesise the needs data with cost effectiveness analysis results. Although this may not give an unequivocal result at least it clarifies the choices considerably. (Scriven, 1981: 39)

At this early stage, subject experts can refine the definition of the target audience and can provide data about its particular needs and abilities.

As a result of an adequate needs-assessment research, cost analysis and expert advice, a rationale for the programme should be written (figure 1, stage 2).

At this phase we may assume that production of a non-effective programme will be avoided, as the rationale for the programme is based upon valuable data (needs research, knowledge of the subject matter, knowledge of the potential audience, etc).

Based on the rationale, the manager contracts the programme writer. The content is first decided upon (figure 1, stage 3). Experts on the subject are invited to provide information concerning content, educational objectives and their order of importance.

At this stage of production, subject experts continually provide the producers with advice and judgemental input about the scientific accuracy of the programme content. The ability of the target audience to accept, absorb or use the ETV message can thus be used as evaluation yardsticks in these early stages.

Another external source of information can be published literature. By the second stage (rationale) of the ETV development only data external to the programme exist, but an internal source of information develops in the "content" and the "script" stages. In these stages evaluators can test the documents and add data gleaned from the examination of these documents. They can also match the written script with the rationale and with the content to ensure that scientific and behavioural objectives are treated and oriented correctly in the script.

Although the medium (TV) is not yet in use, production and target audience issues can be predicted to some extent. The criteria to be predicted will be : suitability of the programme format to content, potential of the medium to fulfill the subject requirements and suitability of a programme to target audience needs.

The rationale document, the written contents, the written script, the written internal reports based on expert input, and the defined objectives are a collection of internal information sources that are available to the evaluator in the early stages of the ETV development.

External sources of data can be established at this stage by expanding the self-evaluation team. Duby (1985 b, c) showed that it is possible even at this stage to collect valid and credible data regarding programme comprehension and acceptability from potential programme users such as teachers and TV professionals. In her study of teachers (potential users of ETV, n=90) and TV professionals (TV managers, researchers and producers, n=12), Duby (1985 b) found that they were not only willing to be involved in formative evaluation activities but were also able to supply worthwhile data.

Data from teachers regarding programmes for pre-school and secondary school pupils revealed that teachers could provide information about analysis of content of programmes given to them in script form.

Late Formative Evaluation

The information sources mentioned above, such as needs assessment, documents, expert opinion and judgement, researchers and production staff evaluation are insufficient for the testing of production issues such as format, presentation, sound, pace, etc.

These issues can be examined with viewers, when a video cassette is available for viewing. (Baggaley and Duck 1976; Cook and Curtin, 1985; Cook et al, 1975)

For this reason ETV production houses usually produce pilot segments or pilot programmes for previewing and formative evaluating (Baggaley et al., 1976; Cook and Curtin, 1985; Cook et al., 1975; Tidhar, 1979) These activities are labelled here "Late formative evaluation".

For example: a pilot programme for the series "Ziki Zikombot" which attempted to teach 5 to 6- year-olds basic mathematical concepts, was produced by the SABC ERTV. The producers thought that apart from their target group they had an opportunity to capture other viewers and significantly increase the number of viewers.

The evaluation study aimed to examine some production issues to ensure that the programme's salient points were not sacrificed by expanding the target age group.

The research conclusion was that it would probably be more effective for both teaching and entertaining to narrow the target audience to one age group (Duby, 1985 c).

This example and others show that testing issues such as the attractiveness of the programme which cannot be tested before the programme is produced and viewed, are therefore correctly postponed to the later stages of the TV development.

Editing techniques are also the subject of late formative evaluation. In the abovementioned study for example, concepts that were emphasised in the ETV through verbal repetition and visual reinforcement were remembered by children after the viewing, whereas the concept that did not receive visual or sound support were not remembered by the viewers.

Nevertheless, although the testing of editing issues can be executed only in the later stages, with the viewing of the programme, bearing in mind the results of such previous studies can provide a source for pre-production guidelines to the producer such as: this concept should be reinforced through sound or visuals.

More than that, usually the main recommendations for improvement concern programme comprehension. This should and could be dealt with when the content synopsis and script are available. Many times these issues cannot be rectified at this late stage and are left uncorrected when full production starts.

The fact that the introduction of changes or corrections to materials on video tapes costs much more than corrections on paper, leads one to conclude that the earlier the change is made, the cheaper it is.

As already discussed, in the early stages of producing a TV programme paper work, brainstorming sessions and discussions take place. Because many people are involved in the formative evaluation activities in these stages they are time-consuming, but are relatively inexpensive processes. One can spend up to 70% of the total development time on preparation activities whereas only 30% of the time is spent on real production. It was calculated that from one hundred percent (100%) of a budget allocated to the production of a programme, a maximum of 30% is spent on the first two stages. This includes experts' fees, script writing, correction of content and correction of script. Once the real production begins, the amount of money spent per stage increases and is used, for example, for the set, the shooting of the recording, and tape editing (70% of the budget). Even short, in the production stage time becomes a money factor as well, because the equipment, the set, TV professionals and such are expensive resources that are paid for according to the time they are used, adding to the cost of these already expensive elements.

If the two measurements of time and money are combined, it is obvious that the earlier the production stage the more time is available for evaluation examinations. Evaluation recommendations bring about required changes and less money is spent on such rectifications.

In summary, when intensive and reiterative formative evaluation takes place in <u>early</u> production stages, the testing of preliminary TV programme segments and/or the testing of the pilot show can be limited mainly to production issues : presentation, setting, sound, acceptability of characters and editing techniques. But the rationale of the programme, its content, objectives, validity, suitability, accuracy and educational contribution should be researched in the <u>early</u> stages.

Who can Evaluate in each Stage

In evaluating ITV programmes, one encounters great variation in who should be involved in the process of evaluation.

In-House Staff

This paper argues that the more the in-house production staff are involved in the evaluation process, hammering out weak points, initiating evaluation activities and analysing problem situations, the more they show openness to evaluative recommendation, and are capable of improving their own professional expertise and understanding, and of applying better evaluation results (Duby, 1985 b).

In researching the feasibility of carrying out self-formative evaluation at the SABC ERTV1 (Duby, 1985b), the willingness and ability of in-house staff (production team and internal researchers) to carry out evaluation activities was tested.

The subjects included three types of specialists : TV managers, producers and internal researchers. The data collected revealed that approximately 85% of the respondents showed a positive attitude towards formative evaluation and that changes and corrections should be made during the production process.

They were also asked at which stage evaluation should take place.

Their answers are summarised here:

a. Formative evaluation should take place at various stages of production, rather than when production is finished, and mainly when the development of content and the written script is in process.

b. Evaluation activities can be started as soon as the idea of the programme has been defined (75%) and the rational written (89%)

c. Producers are less inclined to use formative evaluation than TV managers or researchers.

In the same study the in-house ETV staff answered the question "who should be involved in the evaluation process?"

The interpretation of their answers is:

a) Each group of professionals is inclined to emphasise its own role in the process of evaluation, i.e. all managers delegate themselves the evaluator's role while only 50% of the producers and 20% of the researchers delegate this role to managers.

b) Managers unanimously indicate willingness to co-operate with internal researchers, internal evaluators, external evaluators and subject experts. The producers only grant such credit unanimously to internal researchers, while their openness to external experts is partial.

c) The researchers are even more "self-oriented". At the same time researchers value the target audience's appreciation of a programme, and they value educational practitioners' opinion, more than the production team does.

d) Managers (78%) are more willing to involve professionals of other specialisations in the evaluation of their programmes than producers (53%) and researchers (47%).

One can summarise that the in-house SABC RTV1 production team's attitude towards formative evaluation in the early stages is definitely positive.

The author is aware that results reported here were obtained after lengthy in-house, in-service training activities (overt and covert).

These were geared to persuade ETV staff that formative evaluation was a desirable activity leading to the staff's self-improvement and that evaluation skills could and should be acquired by developers of educational materials.

This assumption was based on the author's experience with the training of teachers (users and evaluators of instructional materials) regarding instructional games. The training dealt with developing and adapting evaluation skills and proved that short training sessions of 2 to 3 days could change the teachers' resistance to formative evaluation, increase their openness to evaluation and improve their capability of conducting evaluation tasks (Duby, 1985 b)

In the same study the TV professional's ability to conduct self-formative evaluation of TV programmes was examined.

The results were that the TV professionals made meaningful judgement on the content of the script and to some minimum extent on the use of the medium.

They were also "reluctant to acknowledge that familiarity with a concept derived from educational psychology was an indispensable prerequisite for producing satisfactory programmes," (Duby, 1985 p. 183) and that they "should receive more intensive training to acquire a level of mastery of this important ability." (Duby, 1985 p. 177)

The TV professionals lacked self-confidence when dealing with learner characteristics and did not recognise the importance to concepts derived from educational psychology.

In addition, by being involved in empirical studies, the producer had direct contact with his target audience, and also became more research-oriented and thus more open to criticism and self-improvement.

Due to the high level of validity of their predictive judgement of the script content the in-house production team should be involved in the self-formative evaluation process and should be consulted.

In terms of contents, further training could improve the team's ability to judge media qualities. On the other hand the evaluation of the suitability of a programme to the target audience is of little value unless the team are subjected to adequate training and given the opportunity to conduct well-designed experimental studies.

Users

As teachers are potential users of ETV who wish to be active and selective users of ETV programmes, and because they know about the learner's needs, capabilities and attitude towards learning issues, an attempt was made to test the extent to which they could be involved in the self-formative evaluation of scripts.

It was reported (Duby, 1985b) that teachers made a valid contribution to evaluating the content and educational aspects of the script.

They also showed competence in evaluating the match between learner characteristics and programme content but were less effective in making evaluative comments about media characteristics and their fitness to the content.

Experts

To create a valuable, comprehensive and accurate programme, experts from other areas not yet discussed should be called in for advice during the ETV development. These should include psychologists, educationists, sociologists, experts in the relevant subject matter, technical experts in relevant inter-disciplinary fields, etc. (Cronbach, 1963; Leide, 1977; Lewy, 1973)

Nevo (1985) consigns two functions to the in-house researcher in this regard: to synthesise the expert's input, and to sample the external experts to be invited to participate in the evaluation project.

Experts should be selected upon their known academic and practical expertise. Their expertise should not stem from their formal qualification only, but they should also be known for their credibility. They can come from disciplinary or interdisciplinary subjects, as the case may be.

Duby (1985 a) distinguished between two functional kinds of expert input: "judgemental statements" as described by Stake (1967) Fox (1971), and Lewy (1971, 1973),whose judgemental statements stem from the comparison of evaluation material with standards; and "expert opinion", which stems from the experts' established and recognised knowledge and experience. She monitored the cases where experts' contributions were suspected to be rather opiniated and concluded that

in most of the issues the experts' input is judgemental and not opinionated. Thus one can ignore the fact that experts have been known for their subjectivity and conclusiveness (Scriven, 1981) and should use experts' input as a powerful source of information for formative evaluation.

The advantages of expert input as an evaluation tool in the early developmental stage of a programme can be summarised as follows:

* Expert contribution broadens the scope of the kinds of information collected on each evaluation programme. (Nevo, 1985)

* Expert opinion in the production stage gives one an extra constructional tool of evaluation. (Duby, 1985 a)

* It is an educational programme and thus we cannot afford to expose our audience to mistakes. Experts can prevent mistakes. (Duby, 1985 a)

* It is cheaper in terms of time and labour to employ experts than it is to try out a pilot or a final programme. (Duby, 1985 a)

* Expert evaluation can help to detect problems in the early stage of programme development. (Lewy, 1973; Nevo 1985)

* In the very early stages of production there is almost no other reliable method of evaluation.

* At early stages of programme development producers are still open-minded to criticism, whereas at later stages they are more concerned to justify what they have produced. (Lewy, 1973)

* It is easier to manipulate the time schedule of experts than of an audience for experiments, observations and tests. (Lewy, 1973)

The Evaluator

It is suggested that the internal evaluator should take a leadership role and should compile the evaluation report, discuss the results with the producers and managers, and should motivate them to accept the report and interpret it.

The evaluator should also assume the responsibility of proving the validity and the reliability of the study. This should serve "to avoid the waste of resources used for implementing untested strategies attempting to achieve unwarranted goals." (Nevo, 1985 : 3)

A model which presents the role of the formative evaluator and the criteria to be considered in each stage is described in the following figure.

Figure 2: The role of the formative evaluator and the criteria to use in each stage.

Stage	Formative Evaluation Activities	Criteria
Idea	Collecting available information Needs assessment Selecting goals Identifying and defining audience	Needs Goals
Rationale	Target audience analysis Medium analysis Collecting & analysing expert judgement Cost analysis	Goals Selected needs Objectives Target audience features: cognitive, affective & psychomotoric costs
Content	Collecting & analysing experts' judgement and opinions Matching with rationale Leading feed-back sessions Refining objectives	Objectives Reference criteria Scientific and educational issues Socio-psychological variables
Script	Final phrasing of the objectives Matching with content Collecting information from potential users Leading feed-back sessions Interpreting experts recommendations	Objectives Reference criteria Predicted production variables: codes, repetitions, links, Sequences Educational input Entertainment issues
Pilot-Programme	Collecting information from viewers	Acceptance by target audience
Late formative evaluation	Interpreting recommendations	Production qualities: technical and organisational Evaluation recommendations

By shifting the weight of formative evaluation from the testing of the actual programme with the target audience to the evaluation of the content of the programme and its values, and by increasing the importance given to educational, moral and scientific criteria, one can hope that formative evaluation in early stages will not only increase the effectiveness of the evaluation techniques, but will also increase the educational scope of our TV programmes.

REFERENCES

Abedor, A.J. (1972). Development and Field of a Model of Formative Evaluation. Viewpoint, 48: 9-43.

Anderson, D.R. (1985). The influence of Television on children's attentional abilities, University of Massachusetts, Amherdt, MA 01003, December, 1985.

Alkin, M.C. (1974). Evaluation and Decision-Making: The Title VII Experience. Los Angeles: University of California, Center for Study and Evaluation.

Aversa, F.M. & Forman, D.C. (1978). Issues in Evaluation of Educational Television Programmes, NSPI Journal, March. (p.16-18).

Baggaley, J.P. (1980). Psychology of the TV Image. Westmead: Gower Pub, U.K.

Baggaley, J.P. & Duck, S.W. (1975). Communication effectiveness in the educational media: three experiments. In Baggaley, J.; Jourisson, G.H. & Marchant, H. (eds) Communication and Learning, Aspects of Educational Technology, vol. 8, London; Pitman.

Baggaley, J. & Duck, S. (1976). Dynamics of television. Gouer, Hampshire.

Bloom, B.S. (1956). Taxomony of Educational Objectives: The Classification of Educational Goals. (Handbook 1: Cognitive Domain). New York: Longman, Green & Co.

Bloom, G.S. (1976). Human Characteristics and School Learning. New York: McGraw-Hill.

Clements, D.H. (1984) Implication of Media Research for the Instructional Application of Computers with Young Children. Educational Technology. Vol. 24, p.7-16.

Coldevin, G.O. (1975). The differential effects of voice-over, super-imposition and combined review treatments as production strategies for ETV programming, in Baggaley, J. Jameson, G.H. & Marchant, H. (eds) Communication and Learning, Aspects of Educational Technology, vol. 8, London; Pitman.

Coldevin, G.D. (1976). Comparative Effectiveness of TV production Variable. Journal of Educational Television & Other Media, 2(3): 87-92.

Cook, T.D. & Curtin, T.R. (1985). ERIC/ECTJ Annual Review Paper, Evaluating the CTW Model for Producing Educational Television, ECTJ, 33(2):91-112 Washington DC.

Cronbach, L.J. (1963). Course Improvement through Evaluation. Teachers' College Record. 64(5): 672-683.

Domingo, A. (1979(. Classifying the Concept of Educational Objectives. Lisbon: Groupo de travolko Posto o Ensi no da Biologica (mimegraph).

Duby, A. (1976). Design of Instructional Materials, Bulletin for Educational Technology, Israel: Ministry of Education and Culture, The Pedagogic Centre, No. 10, (Hebrew).

Duby, A. & Chernov, Z. (1972). Instrument of Evaluate Teaching Aids. Tel Aviv: Institution for Instructional Materials Tel Aviv, (Hebrew).

Duby, A. (1985a). Formative Evaluation of Educational Television Programmes. In Van Zyl, Breytenbach, Duby & Grove, (Eds). Educational Programmes RTV1, Johannesburg: SABC, 1(1): 25-34.

Duby, A. (1985b). Executive Report, Exploratory study for the Formative Evaluation of the ETV Programme "Ziki Zikombot", Johannesburg: ERTV1, SABC.

Duby, A. (1986a). Self-formative Evaluation of Instructional Materials with References to Instructional TV and Games, Paper delivered at the ICA, International Communication Association Annual Conference, Chicago, 22-26 May.

Duby, A. (1986b). Self-formative Evaluation of Instructional Games, conducted by the Instructor. Paper submitted to the ISAGA conference, Paris, July, 1986.

DUBY,A. (In process) Self-formative Evaluation of Instructional Materials Educational Technology, New Jersey.

DUBY,A. : Formative Evaluation of ETV Programmes Paper submitted to the distance Education in Southern Africa: Preparing for the 21st century, Pretoria, May, 1987.

Duby, A. (1987). Formative Evaluation during the Early Stages of ETVP Development, in Baggaley, Duby, Lewy (Ed) Criteria for the Evaluation of ETV Programmes, Johannesburg. (In process).

Eisner, E.U. (1979) The Educational Imagination The Design and Evaluation of Social Programmes. New York: MacMillan.

Fleming, M. (1963) What is a good film? J. University, Film Producers ASSM., (15) 4: 8-9, 18

Forman, D.C. (1980) Instructional Resources, How to Evaluate Educational Television. Instructional Innovators, December, p.29-41

Fox, S. (1971) A Practical Image of the Practical. paper delivered at the Annual Meeting of the American Educational Research Association Convention, New York.

Gropper, G.L. and Lumsdaine, A.A.(1961) The use of Student Response to Improve Televised Instruction: An Overview. American Institutes for Research; Pittsburg, Pennsylvania.

Guilford, J.P. (1959) Three Faces of the Intellect. The American Psychologist, 17: 469-479

Komoski, P.K. (1974) Learner verification: Touchstone for instructional materials? Educational Leadership, February, p.397-399

Land, H.W. (1972) The Children's Television Workshop: How and Why it works. Jericho, N.Y: Nassau Board of Co-operative Educational Services.

Leide, G. (1977) Expert Judgements as Evaluation Data. In Lewy, A. (ed.) Handbook of Curriculum Evaluation, New York Longmans.

Lewy, A. (1971) The Practice of Curriculum Evaluation. Ministry of Education, Curriculum Centre, Jerusalem, 1971.

Lewy, A. (1973) Utilising Experts' Judgements in the Process of Curriculum Evaluation. California: Centre for the Study of Evaluation UCLA Graduate School of Education, Report 87(7)

Lewy, A. (1985a) Formative and Summative. In T. Husen & Postlethwaite, T.N. (eds.) International Encyclopaedia of Education. Oxford: Pergamon Press.

Lewy, A. (1985b) The Autonomous Unit of Evaluation: Combining the Strengths of In-House and External Evaluations. In Tamir, P. (ed). The Role of Evaluators in Curriculum Development, Beckenham: Croom Helm.

Mager, R.F. (1975) Preparing Instructional objectives, second edition USA: F. Caron Publishers Inc.

Mann, J.S. (1969) Curriculum Criticism. Teachers College Research, 71: 27-70.

Markele, S.M. (1967) Empiricial Testing of Programmes. In P.C. Lange (ed.). Programmed Instructions, The Sixty Sixth yearbook of National Society for the Study of Education Part, II. Chicago: NNSE.

Mates, B.F. (1970) Current Emphases and Issues in Planned Programming for Children. In Palmer, E.L. & Dorr, A. (eds) Children and the Faces of Television: Teaching, Violence, Selling. p. 19-32. New York: Academic Press.

Minkowich, A. (1966) Experience and Abstract Thinking, Megamot 14(4): 172-199

Nathenson, M.B. and Euan, S.H. (1980) Using Feedback to improve learning materials London: Croom Helm Ltd

Nevo, D. (1985) Experts' Opinion: A Powerful Evaluation tool. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, March 31 - April 4, 1985.

Nickerson, R.B. (1979) Programme Evaluation using the Programme Education Analysis Computer (PEAC). Paper presented at the 1979 Convention of the Association for Educational Communications and Technology, New Orleans, March 1979.

Palmer, E.L. (1974) Formative Research in the Production of Television for Children. In D. Olsen (ed). Media and Symbols: The Form of Expression, Communication and Education. The Seventy-third yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press.

Palmer, E.L. (1978) A Pedagogical Analysis of Recurrent Formate on Sesame Street and Electric Company. Paper presented at the International Conference on Children's Television, Amsterdam.

Paluzzi, J.V. (1980) Interest and Presentational Formats in J. Baggaley (ed). Proceedings of the Third International Conference on Experimental Research in Television Instruction, Memorial University of Newfoundland, p. 22-35.

Piaget, J. (1952) The Origins of Intelligence in Children., New York: University Press.

Piaget, J. (1957) Logic and Psychology. New York: Basic Books.

Provus, M. (1977) Discrepancy Evaluation. Barkely. McCuthan.

Rydin, I. (1973) Informational processes in pre-school children. Stockholm Swedish Broadcasting Corporation.

Salomon, G. (1974) Interaction of Media, Cognition, and Learning. California: Gossey-Bass Publishers.

Salomon, G. (1976) A Cognitive Approach to Media. Educational Technology. (5) : 25-27.

Scriven, M. (1967) The Methodology of Evaluation. In Tyler, R W.; Gagne, R.M.; & Scriven, M. (eds). Perspectives of Curriculum Evaluation, Chicago: Rand McNally. AERA Monograph series on Curriculum Evaluation, 1: 39-83.

Scriven, M. (1974) Standards for the Evaluation of Educational Programmes and Products. In Borich, G.D. (ed). Evaluating Educational Programmes and Products, Englewood Cliffs: Educational Technology Publications, p. 5-26.

Scriven, M. (1981) Evaluation Third Edition Thesaurus. Edgepress: California.

"Study Methods" (1985) SABC, Educational Programmes RTV1, Episode 1. (ETV Programme). Margaret Landers, Manager.

Suarez, T.M. (1981) Needs Assessment. In Lewy, A. & Nevo, D. (eds). Evaluation Roles. New York: Gordon & Breach, p. 487-505.

Tidhar, C. (1979) Thirteen Years of Evaluation in Instructional Television Centre in Isreal, Tel-Aviv: ITV.

Tyler, R.W. (1950) Basic Principles of Curriculum and Instruction. Chicago; Illinois: University of Chicago Press

Werner, W. (1980) Editorial Criticism in Curriculum Analysis. Curriculum Iniquity, 10: 143-154.

Ziki Zikombot (1985) Educational Television programme, SABC, RTV1. Margaret Landers, Manager.